



CASE REPORT

Sensory neurapraxia of the foot after leg traction on fracture table

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Introduction

We report a case of a dense sensory neurapraxia of the foot in a young fit patient, who underwent femoral nailing and tension band wiring on ipsilateral patellar and femoral fractures. His leg was maintained in traction on the fracture table for a prolonged period. Paraesthesia was noted in the immediate post-operative period, over the area of the foot held in the foot piece of fracture table. No motor deficit was noted. The sensory neurapraxia gradually recovered over the next few days. To our knowledge there is no other similar reported case in the literature. A combination of local pressure of the foot piece of fracture table on the foot and prolonged traction could have resulted in paraesthesia of the foot.

Case report

A 28-year-old male motorcyclist travelling at around 30 mph was involved in a side on collision with a car. He sustained a closed transverse mid-shaft fracture of femur and transverse fracture of patella in the left leg. No neurological deficit was noted in the injured leg and normal foot pulses were noted on

admission. Skin traction was applied on the ward, followed by intramedullary nailing of the femur and tension band wiring of the patella 2 days after the injury. Normal neurological function was noted in the leg before the operative procedure.

The patient was positioned on fracture table with the injured leg held by the foot in the foot piece of fracture table. The foot was initially wrapped with cotton wool and placed in the foot piece of fracture table and a crepe bandage was applied to secure them together. In-line traction was applied throughout the period of surgery. He underwent intramedullary nailing of the femur and tension band wiring of the patella. No intraoperative complications were noted and the total duration of surgery was 3 h and 15 min. On returning to the ward, the patient complained of numbness over the area of the foot held in the foot piece of the fracture table. No motor deficit was noted. Normal peripheral foot pulses were noted.

The sensory deficit was managed with leg elevation and active foot and ankle mobilisation. The sensory deficit gradually improved and recovered completely over a period of 1 week.

Discussion

The sensory innervation of the foot is mainly from the sciatic nerve and a small contribution from femoral nerve (saphenous nerve). The dorsum of the foot is supplied by the saphenous, superficial

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peroneal, deep peroneal and sural nerves. The sole of the foot is supplied by the medial and lateral plantar branches of the tibial nerve and the calcaneal branch of the tibial nerve.

Neurapraxias of the leg following intramedullary nailing have been reported. Lambiris et al.² in 1996 reported two cases of neurapraxia in their series of 427 patients who underwent intramedullary nailing. Koval et al.¹ in 1991 reported neurological complications in 18 (30%) of their patients following reamed intramedullary nailing of tibia. The majority were sensory neurapraxia of the peroneal nerve. Intraoperative skeletal traction was used in all cases through a calcaneal pin. Shakespeare and Henderson³ have shown that traction applied to the acutely fractured tibia will raise the pressures in multiple compartments, possibly jeopardising neurological function. Our patient had an intact tibia and fibula, therefore we do not feel that the mechanism reported by Shakespeare and Henderson is likely to have contributed to the neurapraxia in our patient.

In our reported case the stocking distribution of neurapraxia involved the entire sensory distribution

of the foot without any motor deficit. The neurapraxia could have resulted from prolonged local compression of the foot and superficial sensory nerves by the foot piece of fracture table associated with traction. As prolonged compression is the likely cause, the duration of traction of the foot in the foot piece of fracture table should not exceed the recommended tourniquet time. To our knowledge a similar case of isolated sensory neurapraxia has not been reported in the literature.

References

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